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AUTHOR O'Sullivan, Julia T.
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ABSTRACT

A study investigated the effects of sex and grade in school on students' reading proficiency, students' beliefs about their reading, parents' beliefs about the students' reading, and teacher's beliefs about the students' reading. The study also examined causal relationships between student, parent, and teacher beliefs and students' reading proficiency. The subjects, 552 students in grades 3, 6, and 9 from very low income families in rural eastern Newfoundland (Canada), their teachers, and their parents. Students' reading comprehension was measured, and interviews were conducted with students, teachers, and parents. Results indicated that: (1) at each grade level, students had low mean scores on the standardized reading comprehension test, but their performance on teacher assigned grade was quite high; (2) at all grade levels, students and their parents had very positive beliefs about the students' reading, with teachers' beliefs considerably less optimistic; (3) female students had higher standardized test scores and higher teacher assigned grades than males; (4) compared to males, female students and their parents and teachers had much more positive beliefs about reading; (5) younger children held more positive beliefs about reading than older students; (6) at every grade level, students' beliefs about reading influenced their reading performance directly and significantly; and (7) students' beliefs were heavily influenced by the beliefs of their teachers and especially their parents. (Ten tables and six figures of data are included; 16 references are attached.) (RS)

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Reading Beliefs and Reading Achievement: A Development Study of Students From Low Income Families

Julia T. O'Sullivan

Report Number 6

Summary Reports of Paths to Literacy and Illiteracy in Newfoundland and Labrador

Linda M. Phillips and Stephen P. Norris (editors)

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OBJECTIVES

There were two major objectives in this study. The first was to investigate the effects of sex and grade in school on a) students' reading proficiency, b) students' beliefs about their reading, c) parents' beliefs about the students' reading, and d) teachers beliefs about the students' reading. The second objective was to examine the causal relationships between student, parent and teacher beliefs and students' reading proficiency. The study was focussed on students from low income families because these are the students most at risk for underachievement in reading.

BACKGROUND

Between 15% and 30% of all school students have reading problems (Ellis & Large, 1987). Although most of these students come from low income families many excellent readers also come from such backgrounds. The important point here is that if we want to increase reading proficiency in this population we need to discover what causes reading competence for these children. Once the causes are known, then prevention and intervention efforts would have a sound scientific basis and direction. This issue is particularly important in Newfoundland and Labrador where the incidence of low income families is considerably higher than the national average (Statistics Canada, 1988). On nationally standardized reading tests, students from this province routinely perform below the average, at approximately the 43 percentile rank for the country (Department of Education of Newfoundland and Labrador, 1990, 1991, 1992). Although performance on these tests varies across students, schools and school boards, there is no doubt that the large proportion of students from low income families contributes significant weight to the provincial average. Here, as elsewhere, determining the causes of reading proficiency for these students is a priority.[1]

Beliefs about Reading and Reading Achievement

Good reading requires both cognitive skill and motivational will. There is little point in having the skills to comprehend text without the motivation to take control of those skills and to use them to achieve high standards and goals. Although cognitive skills are the major determinant of reading achievement for young children, as children grow older their motivational beliefs become increasingly important. By grade 5, these beliefs are by themselves excellent predictors of reading achievement (e.g., Oka & Paris, 1987). Children's reading beliefs include, for example, their reading self-concept, their expectations for their reading performance, and their perceived control over their reading. These beliefs influence reading proficiency because they motivate students to behave in ways that eventuate in success or failure. For example, students who believe they are good readers and who expect to do well, persist when they encounter reading problems and try to figure out strategies for overcoming those problems. This persistence results in increasingly sophisticated reading skills which enhance the students' reading proficiency and reinforce their positive reading beliefs. In contrast, students with negative reading beliefs give up easily when they experience problems, believing that there is nothing they can do to overcome them. Consequently, they do not use their experiences to develop their reading skills but instead, interpret those experiences as further evidence for their negative beliefs about themselves as readers.

Why do some students develop positive reading beliefs and others do not? The common sense explanation would be that reading proficiency determines reading beliefs; that students evaluate their reading ability realistically and develop beliefs consistent with those evaluations. This common sense explanation does not stand up to scientific scrutiny. Instead, it turns out that students' beliefs are based, not on reality alone, but on the students' interpretation of reality. For example, an A grade on a reading test could be interpreted by one student as evidence of superior reading ability, by another student as evidence of an easy test, and by a third student as evidence of a mistake. The key point is that the interpretation of experience is often more important that the objective experience itself. Students' interpretations of their reading experiences are heavily influenced by their parents and teachers.

[1] I want to thank Dr. Keith Winter, Deputy Minister of Education for Newfoundland and Labrador in 1990, and the School Board Superintendents, School Principals, and Teachers involved in this study for their cooperation. I am indebted to all the students and their parents/guardians who participated.

These adults have their own expectations for students and their own beliefs about students' competence and control over reading. Parents and teachers communicate those beliefs to students who build on them when forming their own beliefs about themselves. Indeed, students' perceptions of adults' beliefs are often more influential than the students' objective experiences like grades in school (Stipek & MacIver, 1989). There is considerable evidence that the parents and teachers of students from low income families have less positive beliefs about those students than parents and teachers of middle income children (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979). What this suggests is that good readers from poor families achieve success because they believe they can, and they hold that belief because their parents and teachers communicate those messages to them.

In Figure 1, a model of the causal relations between parent, teacher, and student beliefs and the student's reading proficiency is presented. The model was developed specifically for this study and is based on a more general beliefs-achievement model developed by Eccles (Eccles, 1983, 1985). The model in Figure 1 depicts a causal pathway that moves from left to right. Beginning at the left, the student's sex and reading grades in school directly influence parent and teacher beliefs, attitudes, and expectations for that student. Moving to the upper pathway, these parent and teacher beliefs are communicated to and interpreted by the student. These interpretations influence the student's beliefs about him/herself, specifically, beliefs about how good a reader he/she is and about how difficult reading is for him/her. These two beliefs then determine how well the student expects to do as a reader. It is these expectations that directly influence reading proficiency. Returning to the left hand side of the model and moving along the lower path, we see that the student's beliefs about the importance of his/her efforts are determined by parent and teacher beliefs and by the student's previous grades. The student's beliefs about effort influence both the achievement standards he/she sets and his/her perceived control over reading. These two beliefs determine the value that the student places on reading and it is this perceived value that directly influences reading proficiency.

In this study, all the parent, teacher, and student beliefs specified in this model were measured. The effects of the students' sex and grade in school on students' reading proficiency and on student, parent, and teacher beliefs were tested. Also, the causal relations between beliefs and reading proficiency outlined in the model were measured.

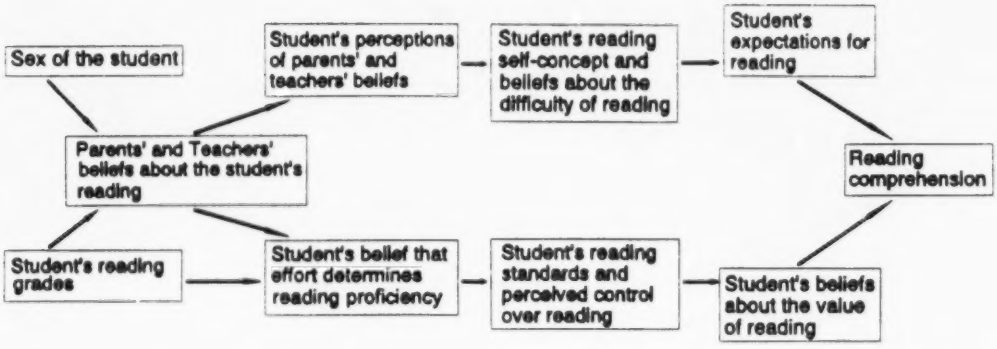
Sex of the student
Student's perceptions of parents' and teachers' beliefs
Student's reading self-concept and beliefs about the difficulty of reading
Student's expectations for reading
Parents' and Teachers' beliefs about the student's reading
Reading comprehension
Student's reading grades
Student's belief that effort determines reading proficiency
Student's reading standards and perceived control over reading
Student's beliefs about the value of reading

Figure 1. Model of Reading Beliefs and Achievement

METHOD

The Sample

Recruitment

The subjects were grade 3, 6, and 9 students from low income families, their teachers and their parents. They were recruited in three stages. First, a sample of schools was selected. To be selected, schools had to be situated in communities a) in Eastern Newfoundland, b) with an average family income that was less than the provincial average (Statistics Canada, 1988) and c) with an incidence of low income families that was higher than the provincial average (Statistics Canada, 1988). Twenty schools, all situated in rural areas, met these criteria. To recruit schools in urban areas, the Superintendents at the Roman Catholic School Board for St. John's and the Avalon Consolidated School Board were asked to nominate schools within their jurisdictions that served a high incidence of low income families. This produced 6 more schools, resulting in a total sample of 26 schools from 8 school boards.

Second, each of the schools produced class lists for grades 3, 6, and 9. Interviewers then contacted the homes of 1527 students by telephone. At this point 92.4% of the parents/guardians (hereafter referred to as parents) contacted agreed to participate in the study and completed a telephone interview. Of these interviewed parents, 77% subsequently gave permission for their children to participate, 1079 students in total. Each of these students was tested.

Third, this sample of 1079 students was reduced to 552 students from very low income families. This was accomplished on the basis of employment information supplied by parents. Families were eliminated if one or both parents was employed full-time in any category other than as a manual labourer. Families were retained if one or both parents was employed full-time in manual labour, employed part-time in any other capacity, or unemployed.

Description

Statistics describing the students' age, sex, and community are shown in Table 1. There were roughly equivalent numbers of female and male students from each of the three grades. The sample is predominantly rural.

Most of the respondents on the parent question naire were mothers of the students sampled (see Table 2) and most reported that they were married. More than 50% of both the responding and the other parents had not completed high school (equivalent to 11 years of education).

The employment information provided by parents is summarized in Table 3. Over 50% reported that they did not work at all during the previous 12 months. Of those reporting employment, few said that they worked for more than 30 weeks. Among respondents who worked, the majority (approximately 60%) were manual labourers, mostly workers in fish plants. For 80% of the students in the study, a second parent lived in the home. Of this group, 17% were unemployed during the previous year. Among those who were employed, few worked for more than 30 weeks. Most were reported to be manual labourers (mainly fish plant workers) and skilled tradespeople (mainly fishermen/women).

Table 1

Number of Students, Age, Sex, and Type of Community by Grade

	Grade 3	Grade 6	Grade 9
Number of Students	180	209	163
Mean Age	8 yrs 6 mths	11 yrs 9 mths	14 yrs 10 mths
% Female	45%	52%	58%
% Male	55%	48%	42%
% Rural	82%	78%	70%
% Urban	18%	22%	30%

Table 2

Marital Status and Years of Education Reported by Respondent on the Parent Guardian Questionnaire

Respondents' Relationship to Student	Respondents' Marital Status	Respondents' Years of Education	Other Parent/ Guardians'[1] Years of Education[2]
Mother 91.9%	Married 80.8%	Mean = 9 yrs.11 mths	Mean = 9 yrs.7 mths
Father 6.7%	Divorced 8.3%	Median = 10 years	Median = 10 years
Other 1.4%	Other 10.9%	Mode = 11 years	Mode = 11 years

[1] Other parent/guardian includes only those living with the respondent.

[2] Includes years in Public School, Trade School and University.

Table 3

Type and Amount of Employment for Respondents and Other Parents/Guardians[1]

Type of Employment	Percentage of Respondents	Percentage Respondents Employed ≤ 30 weeks	Percentage Other Parent/ Guardian	Percentage Other Parent/ Guardian Employed ≤ 30 weeks
Unemployed	52.0%	100%	17.1%	100%
Professional/ Technical	3.0%	100%	2.4%	83.3%
Skilled Trade	6.5%	85.7%	22.2%	88.8%
Clerical/Sales	10.7%	94.2%	2.0%	93.7%
Manual Labour	27.8%	67.5%	36.7%	79.6%

[1] Other parent/guardian only includes those living with the respondent.

Materials

Students' reading comprehension was measured on the comprehension subtest of the Gates-MacGinitie Reading Test (MacGinitie, 1978). In addition, three questionnaires, one each for students, their parents, and their teachers, were developed for this study. These instruments were designed to measure beliefs about reading and were modelled closely on similar instruments developed by Eccles (1983, 1985) to measure beliefs about mathematics. The student questionnaire measured 16 beliefs. Each belief was measured using 1 to 4 items, with a 7 point Likert response scale for each item. The beliefs were:

1) Self-concept of reading ability (e.g., I believe I am a very good reader);
2) Perception of reading difficulty (e.g., I find reading very hard);
3) Perceived control over reading (e.g., I can improve my reading a lot);
4) Current expectations (e.g., I will get a good grade in reading this year);
5) Future expectations (e.g., I would do well in a job that requires good reading);
6) Reading standards (e.g., I would be upset if I got a low grade in reading);
7) Utility value of reading (e.g., what I learn in reading is very useful);
8) Intrinsic value of reading (e.g., I find reading very interesting);
9) Importance of effort for success (e.g., when I work hard I do well in reading);
10) Importance of effort for failure (e.g., when I read poorly it's because I did not try hard enough);
11) Parents' satisfaction with the student's reading (e.g., I am doing as well in reading as my parents want me to);
12) Parents' beliefs about the student's reading ability (e.g., my parents believe I am a good reader);
13) Importance of the student's reading to parents (e.g., my parents would be very upset if I got a low mark in reading);
14) Teacher's satisfaction with the student's reading (e.g., I am doing as well in reading as my teacher wants me to);
15) Teacher's beliefs about the student's reading ability (e.g., my teacher thinks that I am a good reader);
16) Importance of the student's reading to the teacher (e.g., my teacher would be very upset if I got a low mark in reading).

Both the parent and teacher questionnaires measured beliefs about:

1) The student's reading ability;
2) The difficulty of reading for the student;
3) The student's control over reading;
4) The parent/teacher's ability to help the student improve;
5) Parent/teacher's current expectations for the student's reading performance;
6) Parent/teacher's future expectations for the student's reading performance;
7) Importance of effort for the student's reading success;
8) Importance of effort for the student's reading failure.

The parent questionnaire also measured the parents' achievement standards, beliefs about the utility value and the intrinsic value of reading for the student. That questionnaire also contained 15 items designed to measure marital status, employment, and years of education for the respondent parent and the student's other parent.

Procedure

Six trained interviewers conducted the telephone interviews with parents. Following the interview, students whose parents gave written permission for their participation, were tested. Researchers travelled to the school to test the students and to distribute the teacher questionnaires. Subjects were tested in groups. They completed the student reading beliefs questionnaire and the reading comprehension subtest on the Gates-MacGinitie Reading Test. The questionnaire was read aloud by the experimenter and was administered before the reading test (to eliminate the effects of the test on students' beliefs). For each student involved in the study, the teacher with primary responsibility for the student's reading or English instruction completed the teacher questionnaire. A total of 74 teachers responded with only 3 refusing to participate. Data collection for this study

took 8 months from start to finish. It began in September 1990 and was completed in April 1991.

FINDINGS

Two sets of questions were addressed in the analyses. First, the effects of students' sex and grade in school on (a) students' reading comprehension, (b) students' reading beliefs, (c) parents beliefs about students' reading, and (d) teachers beliefs about students' reading, were measured. Second, the causal relations between student, parent and teacher beliefs, and students' reading achievement, specified in the research model were tested.

Effects of Sex and Grade

Students' Reading Performance

On the standardized reading comprehension test, female students had significantly higher scores than males and this difference was evident at each grade level (see Table 4). When these standard scores were converted to percentile rank equivalents, they indicated that on average the females were functioning at the bottom 35%, and males at the bottom 18% of the population as a whole. (Note that scores for individual students ranged from the 1st to the 99th percentile rank.)

Table 4

Performance in Standard Scores on the Gates-MacGinitie Reading Comprehension Test by Grade and Sex

		Study Sample					
		Grade 3		Grade 6		Grade 9	
		Females	Males	Females	Males	Females	Males
Reading Comprehension	Mean	44.5	39.6	45.7	42.8	44.2	40.6
	S.D.	9.4	9.6	9.8	9.4	9.6	8.7

Performance on the standardized reading test can be compared with teacher assigned reading grades from the previous school year (see Figure 2). On both measures females had higher scores than males. However, the performance of both males and females on teacher assigned grades was quite high. For example, at each grade level, more than 65% of the females obtained a teacher assigned grade of 76% or higher. These are the same students whose average standardized test performance placed them in the bottom 35% of the population.

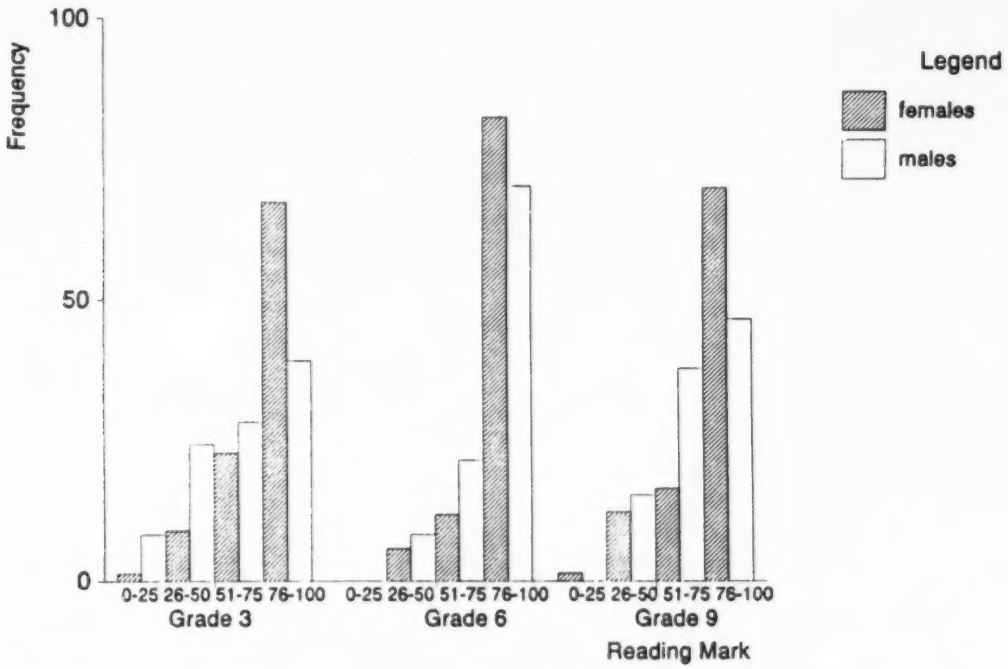

Figure 2. Teacher Assigned Reading Grades

Students' Reading Beliefs

On 12 of the 16 reading beliefs, females and males had significantly different scores (see Table 5). Furthermore, these sex differences were evident at each of the three grade levels. Compared to males, females considered themselves to be better readers, rated reading as easier, more useful, more pleasurable and interesting. Females set higher achievement standards for themselves and had higher expectations for their current and future achievements in reading. Interestingly, despite these differences, females and males believed that they had equal control over their reading and were equally capable of improving. Also, males and females had similar beliefs about the role of effort in reading. Both groups stressed that effort was important for their success and that insufficient effort caused their reading difficulties. Sex differences were also evident in students' perceptions of their parents' and teachers' beliefs. Compared to males, females believed that their parents and teachers considered them to be better readers and were more satisfied with their reading achievement. Finally, females believed that their reading was more important to their parents than males believed, but there was no sex difference in the perceived importance of students' reading to the teacher.

Table 5

Mean Scores for Female and Male Students on Measures of Reading Beliefs

Measure	Female	Male	Maximum Possible Score
Reading self-concept	21.8	19.5	28
Difficulty of reading	11.0	12.5	28
Perceived control over reading	10.5	10.4*	14
Current expectations	10.6	9.5	14
Future expectations	17.6	16.5	21
Reading achievement standards	9.6	8.8	14
Utility value of reading	18.4	16.7	21
Intrinsic value of reading	21.5	17.4	28
Effort causes good reading	5.8	5.6*	7
Lack of effort causes poor reading	4.2	4.6*	7
Perception of parents' satisfaction with student's reading	6.1	5.3	7
Perception of parents' beliefs about student's reading ability	5.7	5.2	7
Perceived importance of student's reading to parents	12.5	12.0	14
Perception of teacher's satisfaction with student's reading	5.2	4.6	7
Perception of teacher's beliefs about student's reading ability	5.5	5.1	7
Perceived importance of student's reading to teacher	10.3	10.0*	14

* Sex difference is not statistically significant

Grade level also had a considerable influence on reading beliefs (see Table 6). In general, older students were less optimistic than younger ones. Older students considered themselves to be poorer readers, rated reading as more difficult, and less interesting and pleasurable than younger children.

Table 6

Mean Scores of Students
on Measures of Reading Beliefs by Grade

Measure	Grade 3	Grade 6	Grade 9	Maximum Possible Score
Reading self-concept	21.6	20.6	19.7	28
Difficulty of reading	11.3	11.0	13.2	28
Perceived control over reading	10.8	10.7	9.9	14
Current expectations	10.1	10.3	9.7	14
Future expectations	18.5	17.3	15.0	21
Reading achievement standards	8.7	9.6	9.2	14
Utility value of reading	18.0	18.3	16.2*	21
Intrinsic value of reading	20.1	20.9	17.0	28
Effort causes good reading	6.25	5.55	5.35	7
Lack of effort causes poor reading	3.5	4.7	5.1	7
Perception of parents' satisfaction with student's reading	6.2	5.7	5.2	7
Perception of parents' beliefs about students reading ability	6.1	5.3	4.7	7
Perceived importance of student's reading to parents	12.6	12.6	11.5	14
Perception of teachers satisfaction with students reading	5.8	4.7	4.3	7
Perception of teachers beliefs about student's reading ability	5.8	5.3	4.8	7
Perceived importance of student's reading to teacher	10.7	10.4	9.2	14

* The effect of grade is not statistically significant

Interestingly, students set higher reading achievement standards as they got older but their expectations decreased, as did their beliefs about their control over reading. Compared to younger children, older students believed that their parents and teachers considered them poorer readers, were less satisfied with their reading, and believed it to be less important. With increasing age, students attached increasing importance to insufficient effort as the cause of their reading problems. The only reading belief that did not change with age was the perceived utility value of reading. Students at all grade levels considered reading to be very useful.

Finally, it is very important to note that at all grade levels, for both female and male students, mean scores for each belief fell on the positive end of the measurement scale. This means that, on the average, students reading beliefs were positive or healthy.

Parents Beliefs about Students

Parents, like their children, had very positive beliefs about the child-ren's reading (see Table 7). Parents believed that their daughters were better readers than their sons and that reading was easier, more interesting and pleasurable for daughters. They set higher achievement standards for daughters and had higher expectations for their daughters current and future achievements in reading.

Table 7

Mean Scores on Measures of Parents' Beliefs about their Sons' and Daughters' Reading

Measure	Daughters	Sons	Maximum Possible Score
Child's reading ability	22.6	19.8	28
Difficulty of reading for child	12.4	15.9	28
Child's control over reading	9.8	9.8*	14
Parent's ability to help child improve	19.1	19.4*	21
Current expectations for child	10.2	9.3	14
Future expectations for child	11.9	10.6	14
Reading achievement standards for child	4.8	4.4	7
Current utility value for child	13.7	13.8*	14
Future utility value for child	19.9	19.6*	21
Child's intrinsic value	17.4	14.3	21
Child's effort causes good reading	6.1	6.1*	7
Child's lack of effort causes poor reading	4.2	4.7*	7

* Sex difference is not statistically significant

Nevertheless, parents placed equal importance on the value of reading for both daughters and sons. Parents believed that sons and daughters had equal control over their reading, were equally capable of improving and that they, the parents, could help sons and daughters equally. Parents did not distinguish between sons and daughters in terms of the importance of effort for successful reading or the role of insufficient effort as a cause of reading problems. Grade level had little effect on parents' beliefs (see Table 8). Exceptions were that parents thought they could help younger children more than older ones, expected more from younger ones, and as students got older, increasingly stressed the role of insufficient effort as a cause of their children's reading problems. All of these grade differences were most pronounced between grades 6 and 9.

Table 8

Mean Scores on Measures of Parents' Beliefs about their Children's Reading by Grade

Measure	Grade 3	Grade 6	Grade 9	Maximum Possible Score
Child's reading ability	21.0	22.0	20.6*	28
Difficulty of reading for child	14.0	13.4	15.2*	28
Child's control over reading	10.0	9.8	9.5*	14
Parents ability to help child improve	19.9	19.4	18.2	21
Current expectations for child	9.7	10.0	9.4	14
Future expectations for child	11.6	11.4	10.9	14
Reading achievement standards for child	4.5	4.7	4.6*	7
Current utility value for child	13.8	13.8	13.8*	14
Future utility value for child	19.7	19.8	19.8*	21
Intrinsic value for child	16.6	15.9	15.0	21
Child's effort causes good reading	5.95	6.1	6.3*	7
Child's lack of effort causes poor reading	4.15	5.2	4.2	7

* The grade effect is not statistically significant

Teachers Beliefs about Students

The sex differences in student and parent beliefs was also evident in teacher beliefs. Teachers considered that their female students were better readers and found reading easier than males (see Table 9).

Teachers had higher expectations for females. Teachers believed that male students were more capable of improvement and that they, the teachers, were more capable of helping male students improve. Finally, teachers believed that insufficient effort was a more important cause of reading problems for males than females.

Table 9

Mean Scores on Measures of Teachers' Beliefs about their Female and Male Students' Reading

Measure	Female Students	Male Students	Maximum Possible Score
Student's reading ability	9.7	8.1	14
Difficulty of reading for student	6.3	7.5	14
Student's control over reading	5.9	6.9	14
Teacher's ability to help student improve	5.8	5.4	7
Current expectations for student	9.0	7.9	14
Future expectations for student	4.9	4.2	7
Student's effort causes good reading	5.4	5.3*	7
Student's lack of effort causes poor reading	3.8	4.6	7

* Sex difference is not statistically significant

Like the parents, teachers' beliefs did not change very much across the grades (see Table 10). Exceptions were that grade 3 teachers had lower expectations for their students than grade 6 and 9 teachers and that teachers of younger children believed them to have less control, and to be less capable of improvement, than teachers of older students. Teachers of older students placed increasing emphasis on the role of insufficient effort as a cause of their students' poor reading.

Finally, although both students and their parents had very positive beliefs, teachers' beliefs were much less optimistic, especially about the students' ability to improve.

Table 10

Mean Scores on Measures of Teachers' Beliefs about their Students' Reading by Grade

Measure	Grade 3	Grade 6	Grade 9	Maximum Possible Score
Students reading ability	8.6	9.2	8.9*	14
Difficulty of reading for student	7.1	6.3	7.3*	14
Student's control over reading	6.0	6.3	7.1	14
Teacher's ability to help student improve	5.8	5.4	5.5*	7
Current expectations for student	7.9	8.9	8.6	14
Future expectations for student	4.6	4.6	4.5*	7
Student's effort causes good reading	5.5	5.15	5.4*	7
Student's lack of effort causes poor reading	3.6	4.2	4.8	7

* Effect of grade is not statistically significant

Relations between Beliefs and Achievement

The causal relations between the variables detailed in the research model (see Figure 1) were tested separately for grades 3, 6, and 9. The results of these analyses are shown in Figure 3 on the next page. In the Figure, the presence of an arrow indicates a significant effect and the absence of an arrow indicates no effect. Clearly, there are similarities and differences between the significant models at the different grades. First consider the similarities. At each grade, students' expectations directly and significantly influenced their reading comprehension but their perceptions about the value of reading did not. The second similarity is that the upper causal path of the model was significant at each grade. Moving from left to right at each grade level, the students' sex and previous reading grades directly affected parents' and teachers' beliefs. Students' perception of those adults' beliefs influenced the students' reading self concept. The effect of students' self concept on reading comprehension was indirect, mediated by the students' expectations. At each grade, it was the students' current rather than future expectations that had the major influence on reading comprehension. The relationship between current expectations and reading achievement (collapsed across grades) is shown in Figure 4, where high versus low expectations were associated with more than one standard deviation difference in mean reading comprehension scores.

There were a number of important differences in the model at the different grades. First consider the model in grade 3 (see Figure 3). Moving from left to right, the students' grades had a much stronger

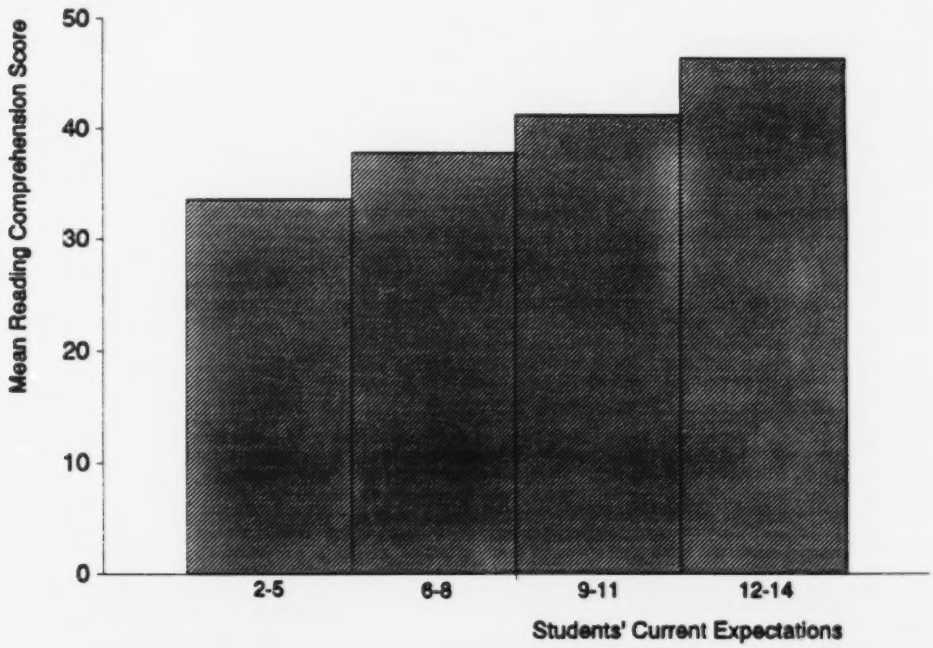

Figure 4. Relationship Between Students' Current Expectations and Reading Comprehension

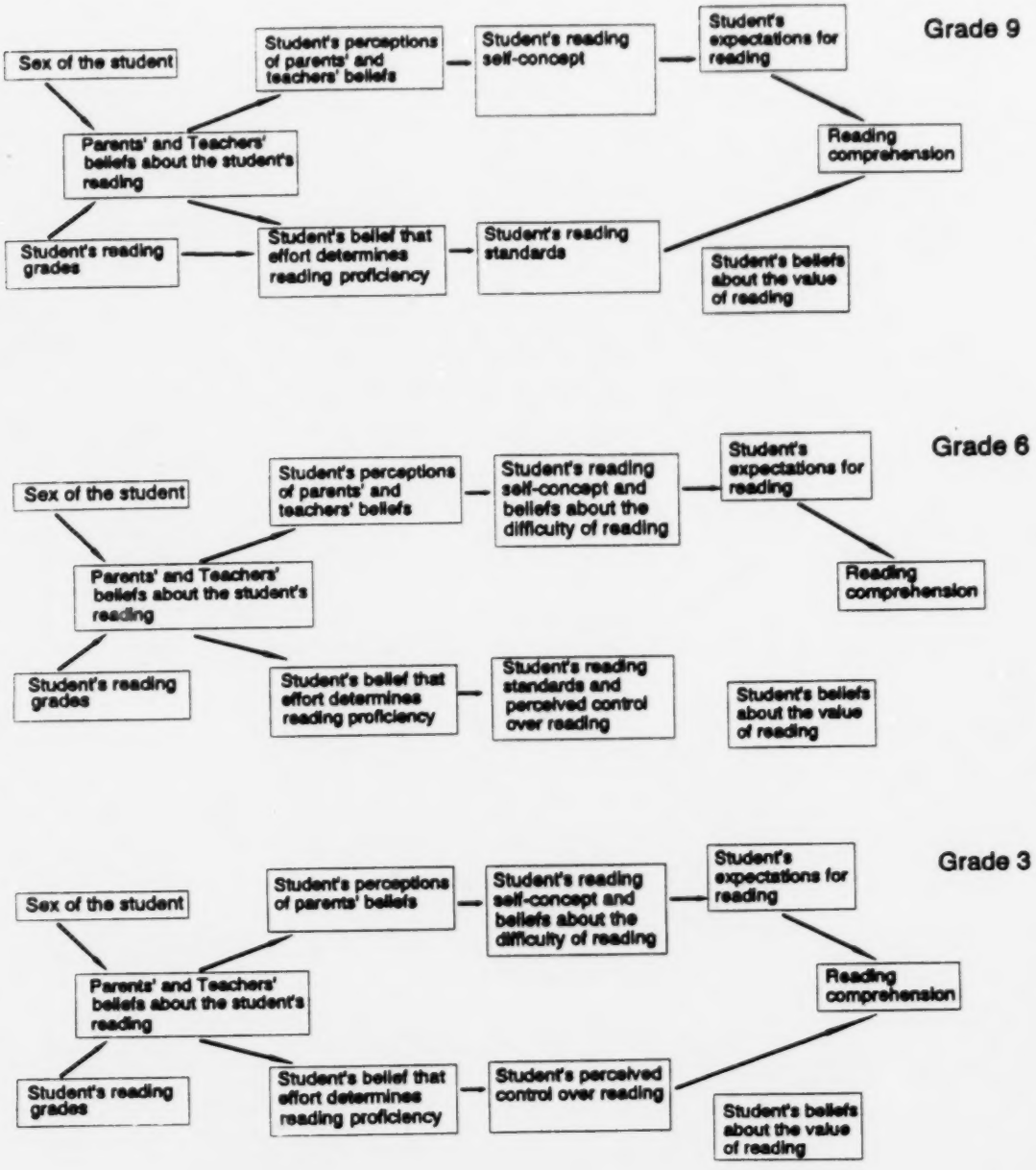
Grade 9
Sex of the student
Student's perceptions of parents' and teachers' beliefs
Student's reading self-concept
Student's expectations for reading
Parents' and Teachers' beliefs about the student's reading
Reading comprehension
Student's reading grades
Student's belief that effort determines reading proficiency
Student's reading standards
Student's beliefs about the value of reading
Grade 6
Sex of the student
Student's perceptions of parents' and teachers' beliefs
Student's reading self-concept and beliefs about the difficulty of reading
Student's expectations for reading
Parents' and Teachers' beliefs about the student's reading
Reading comprehension
Student's reading grades
Student's belief that effort determines reading proficiency
Student's reading standards and perceived control over reading
Student's beliefs about the value of reading
Grade 3
Sex of the student
Student's perceptions of parents' beliefs
Student's reading self-concept and beliefs about the difficulty of reading
Student's expectations for reading
Parents' and Teachers' beliefs about the student's reading
Reading comprehension
Student's reading grades
Student's belief that effort determines reading proficiency
Student's perceived control over reading
Student's beliefs about the value of reading

Figure 3. Reading Beliefs and Achievement in Grades 3, 6, and 9

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influence on parent and teacher beliefs than the students' sex On the upper causal path, it was the students' perceptions of their parents' but not of their teachers' beliefs that influenced their self-concepts. Self-concept and beliefs about the difficulty of reading determined the students' expectations which influenced reading comprehension directly. Turning now to the lower causal path, grade 3 students' beliefs about the importance of their efforts were directly affected by their parents' and teachers' beliefs. Importantly, the students' grades had no direct effect on their effort beliefs. Although their effort beliefs determined both the students' achievement standards and their perceived control over reading, only perceived control directly influenced reading comprehension. The relationship between reading comprehension and perceived control is shown in Figure 5, where high versus low perceived control is associated with more than one standard deviation in reading performance. Finally, for grade 3 children the upper causal path was more influential than the lower path, with expectations a stronger determinant of reading than perceived control.

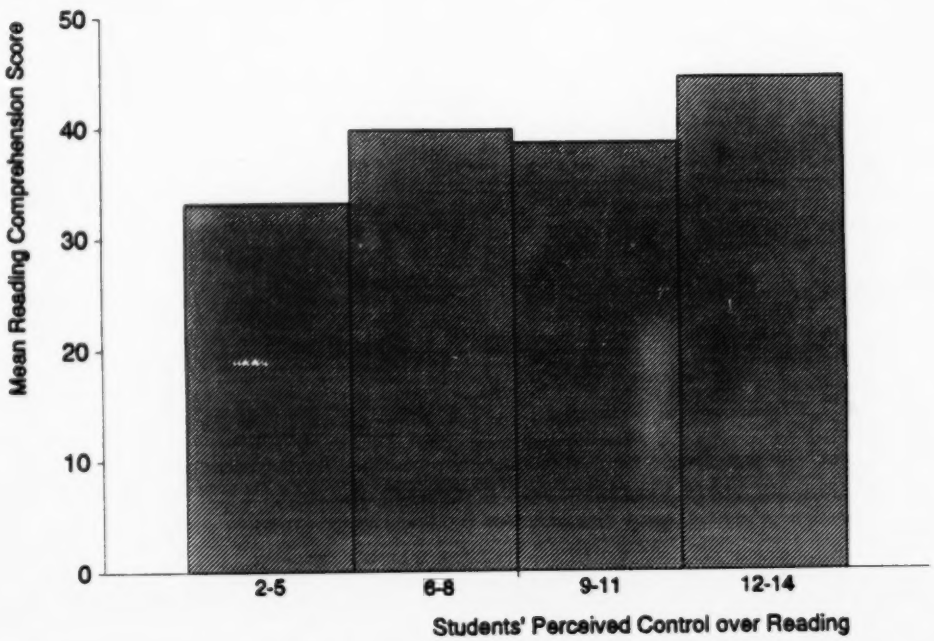

Figure 5. Relationship Between Reading Comprehension and Perceived Control over Reading in Grade 3

In grade 6 (see Figure 3) the students' grades and sex had an equivalent influence on parent and teacher beliefs. Along the upper path, grade 6 students' perceptions of both their parents' and their teachers' beliefs affected their self concepts and their beliefs about the difficulty of reading. Of these two beliefs, only self-concept influenced expectations which in turn determined reading comprehension. No lower path is shown for grade 6 (see Figure 3). This is because the lower causal chain did not end with a significant effect on reading comprehension. However, parent and teacher beliefs did influence grade 6

students' beliefs about the importance of their efforts. As was the case in grade 3, reading grades had no significant effect on the grade 6 students' effort beliefs. Although, effort beliefs influenced both perceived control and achievement standards, there were no significant paths beyond this point in grade 6.

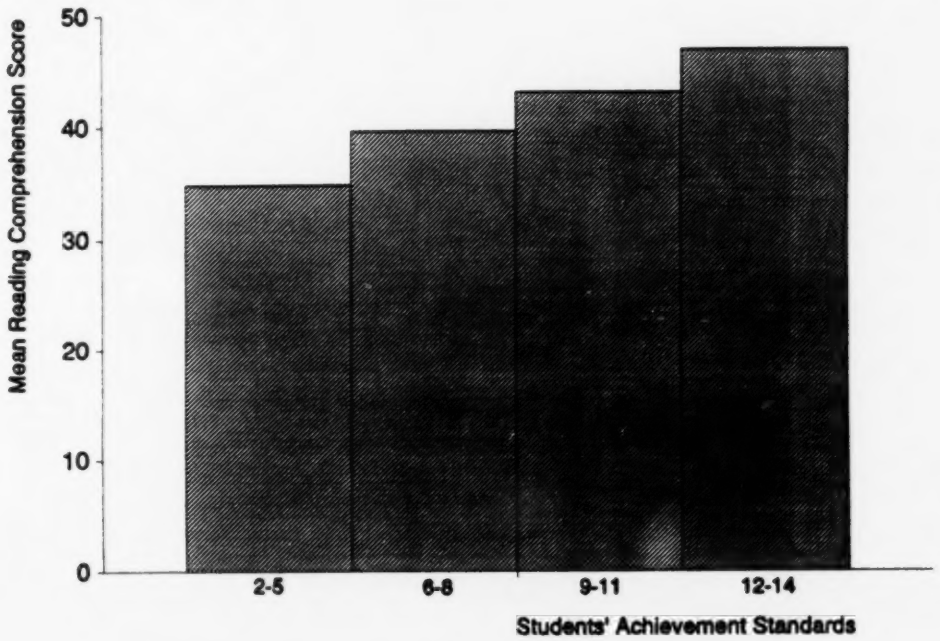

Figure 6. Relationship Between Reading Comprehension and Achievement Standards in Grade 9

In grade 9, the upper path is similar to grade 6 except that the students' sex had a more powerful influence on parent beliefs than did reading grades. For the lower path, beliefs about the importance of effort were affected by parent and teacher beliefs and also by the students reading grades. These effort beliefs influenced the students' own achievement standards which, in turn, determined reading comprehension. Relations between reading comprehension and reading achievement standards are shown in Figure 6, where low versus high standards are associated with more than one standard deviation difference in reading comprehension. Finally, at this grade level the lower causal path was ultimately more influential than the upper path, with achievement standards a more powerful determinant of reading than expectations.

SUMMARY OF FINDINGS

At each grade level students had low mean scores on the standardized reading comprehension test but their performance on teacher assigned grades was quite high. At all grade levels, students and their parents had very positive beliefs about the students' reading with teachers' beliefs considerably less optimistic. There were pronounced sex differences.

Female students had higher standardized test scores and higher teacher assigned grades. Furthermore, compared to males, female students and their parents and teachers had much more positive beliefs about reading. Grade in school had a significant effect on students' beliefs with younger children holding more positive beliefs than older students. At every grade level, students' beliefs about reading influenced their reading performance directly and significantly. Students beliefs were, in turn, heavily influenced by the beliefs of their teachers and especially their parents. What this means is that students who had the most positive beliefs about themselves were the most proficient readers. These students also had parents and teachers who held extremely positive beliefs and communicated them to their children/students.

DISCUSSION AND CONCLUSIONS

Reading Performance

There was great variation in the reading proficiency of the individual students in this study, ranging from the 1st to the 99th percentile in reading comprehension. However, the average performance of these students on the standardized reading test was quite low. The average score for female students fell within the bottom 35% of the population and for males within the bottom 18%. It is obvious that among these students are many of the adult problem readers of tomorrow. It is also clear from these findings that by the age of 8 or 9 nine years, children from low income homes in Newfoundland and Labrador are already among the nations worst readers. Although these younger students have many years of formal education ahead, they are unlikely to improve their reading significantly (Stanovich, 1986). It follows that efforts to prevent or decrease reading difficulties should target much younger children. Researchers have produced the type of knowledge that can be used to design enriching literacy experiences for toddlers and preschoolers. Furthermore, there is considerable evidence that such programs can have a significant impact on the prevalence and magnitude of reading problems among economically disadvantaged children. What is needed now is a committed effort to put this knowledge to work for low income families.

Females outperformed males on both the standardized reading test and on teacher assigned grades. Furthermore, these sex differences were evident at each grade level. Sex differences in reading achievement have been routinely reported in the scientific literature and, in Newfoundland and Labrador, male students consistently underachieve in reading relative to females (Department of Education for Newfoundland and Labrador, 1990, 1991, 1992). The findings in this study indicate that these sex differences were well established by grade 3. This means that the factors responsible for those differences had already been at work for several years. Research on sex differences indicates that, in North America, female children are better prepared for the school system than males because they have been socialized to behave in ways that are valued in school (e.g., compliance). Male children experience greater difficulty conforming to the school system, especially the so called "feminine" environment of primary-elementary school where the majority of teachers are female. As a result, male children outnumber females in almost every type of "problem" behaviour identified in school, including underachievement in reading. Interestingly, when boys are taught by male teachers their reading achievement is equivalent to that of girls (Shepherd-Look, 1982). Research that will examine how these sex differences develop, and how they are maintained, is badly needed. This research should include a focus on socioeconomic and cultural variables because these factors play a major role in the socialization practices of families, schools, and communities. Finally, sex differences in reading (which favour females) have received far less publicity than sex differences in mathematics (which favour males). In Newfoundland and Labrador at least, the sex bias in reading is sufficiently well established that it should be acknowledged as a serious educational concern. Without such acknowledgement this issue is unlikely to be studied systematically, never mind rectified.

Beliefs About Reading

Despite their poor performance on the standardized reading test, these students and their parents had, on average, very positive beliefs about the students' reading. In fact, the findings converge on the con-

clusion that these students and their parents did not realize that the students had difficulties, much less appreciate the magnitude of the problems. How can this be? The findings show that the teacher assigned reading grades had a very strong influence on parents' beliefs about their children's reading. Those teacher assigned grades painted a different and much more optimistic picture than standardized reading scores. To a large extent, parents based their beliefs on those grades and communicated those beliefs to their children. The children's beliefs were consistent with those of their parents and in fact it was not until grade 9 that grades influenced the students' own beliefs directly. What this means is that neither parents nor students had objective evaluations of the students' reading but instead held beliefs that were, on average, far removed from the reality of the students' reading proficiency. The beliefs of these and other low income parents may be especially susceptible to teacher supplied information about their children. This is because they have insufficient knowledge about reading to evaluate their children's achievement for themselves and they tend to delegate authority to the school for their children's education. Norris, Phillips, and Crocker (1992) have shown that individuals who wish to have more say in their education tend to have higher literacy levels. The implications of these findings are clear. Efforts to prevent or decrease reading problems must include parents. Low income parents should be educated about reading development and instruction. This would enable them to evaluate their children's progress for themselves. At the same time, they should be encouraged to take a more active role in the school system, working for a better education for their children.

There were developmental differences in the students' beliefs. Between grades 3 and 6 children's confidence in their reading ability declined. This is a common finding in developmental studies of achievement motivation. It reflects the fact that young children are unrealistic about their abilities but become more objective with age. There were also significant changes in students' beliefs between grades 6 and 9. Grade 9 students believed that reading was more difficult and less interesting and enjoyable. Compared to grade 6, grade 9 students set higher achievement standards and believed they had less control over reading. Also, grade 9 students had lower expectations and accurately perceived that their parents expected less from them. At the same time, parents believed that they could not help grade 9 students as much as younger children. These findings indicate that, by grade 9, students and their parents were beginning to experience some loss of control over the students reading and were lowering their expectations. Nevertheless, their beliefs were still quite positive and they had not yet achieved a realistic evaluation of the students' reading proficiency.

The teachers beliefs were more realistic than those of the parents and students but were inconsistent with both the teacher assigned grades and the standardized reading scores. Why? First, consider the inconsistency between beliefs and assigned grades. For example, even though teachers rated their male students as average readers overall, 45% of those male students had teacher assigned grades of 76% or higher. Why were the teacher assigned grades so much higher than the teacher ratings? It is well known that teachers falsely believe that low grades can have devastating consequences on students' self-esteem and so they try to avoid using them (Clifford, 1984). Although such practices may stem from the sincere belief that they are acting in the students' best interests, the effect of such practices is to promote beliefs that are inconsistent with the students' real abilities. In the long term, the consequences of such practices may have profound effects for students and their families. This seems particularly true for low income families who are so dependent on teacher supplied information about their children's achievement. There is an obvious need for research on teachers' beliefs about and approaches to evaluation.

Now consider the discrepancy between teacher beliefs and standardized test scores. For example, males students who were rated by teachers as average readers overall, had a mean reading performance level equal to the 18th percentile rank. Did these teachers not appreciate the reading achievement level of their students? It is quite possible that they did not and they are not alone. There is accumulating evidence that reading teachers have insufficient expertise in reading to develop and evaluate sound teaching practices (Richardson, 1990). Without this expertise they rely on curriculum guides, government and school board guidelines for directives on how to teach reading. Unfortunately, directives provided by

such sources are typically out of step with research on reading development and instruction. What this means is that current scientific knowledge about reading is not reaching those who could and should use it -- the classroom teachers. Overall, the discrepancies between teachers' beliefs and students' performance found in this study suggest the need for a large scale investigation of reading instruction in the schools. Although practicing teachers would be included, this research should extend well beyond the classroom. It should include those systems and persons whose responsibility it is to train teachers, to support their professional development, and to provide leadership in curriculum, instruction, and evaluation in reading. Afterall, these systems and persons are the principle players shaping reading instruction in our schools.

Beliefs and Achievement.

Although the beliefs demonstrated in this study were unrealistic overall, this should not detract from the finding that the most proficient readers had the most positive beliefs, as did their parents and teachers. These are very important findings because they demonstrate that students from low income families can achieve excellence in reading and that this excellence is determined in large part by motivational beliefs. Furthermore, the findings show that students' beliefs are intimately related to their teachers' and especially their parents' beliefs. When adults communicate the message that students can take control of their reading, set high standards, and achieve their goals -- they do. These findings support the recommendation that interventions aimed at improving the reading performance of school students should focus, not only on teaching cognitive skills, but on encouraging beliefs that empower students to take control of those skills. Those beliefs would motivate students to persist where they encounter problems, to figure out strategies for overcoming those problems, and to develop increasingly sophisticated skills that can be used to achieve increasingly elaborate goals.

There was a developmental shift in the sources students relied on in forming those beliefs. Young children relied heavily on parents but older students looked to parents, teachers and school grades for information about themselves. These developmental changes in the source of students reading beliefs have implications for education. Because students evaluate themselves differently at different ages, instructional practices that maximize motivational beliefs in one age group may not be appropriate for students in another age group. For example, participation by parents during the primary and elementary years should be actively sought and encouraged. Because parents form beliefs and pass them down to children, it is imperative that parents develop beliefs consistent with achieving excellence in reading. For older students, the teachers' beliefs and grades in school become important. At this point it is imperative that both teachers and grades reflect an objective appraisal of each student's performance.

Finally, these findings indicate that not all beliefs are created equal. In particular, beliefs about the value of reading (both utility and intrinsic value) had little impact on students' reading performance. Beliefs about value are beliefs about what reading can bring to the student. Instead, it was beliefs about what the student can bring to reading (e.g., control over reading, expectations for performance) that mattered here. This means that students are motivated by a sense of empowerment or personal control over their reading rather than anticipated rewards or benefits. Furthermore, these empowering beliefs became increasingly fine tuned across the grades. For young children, it was general beliefs about reading ability, the difficulty of reading, and expectations that predicted achievement. For older students, it was specific instrumental beliefs about the contribution of their efforts to their performance and their own achievement standards that were important. The educational implications are clear. Children need to develop a sense of mastery over their reading, and this mastery motivates students to welcome challenge and to find reading rewarding for its own sake. Finally, as these and other findings in this study show, students need to develop sufficient reading skill to justify a sense of mastery, because will without skill is illusionary.

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